Claims

1. A method of setting a state, which is defined by a group of one or more parameters, the method comprising:

providing a display of at least five fixed points each associated with the group of one or more parameters, wherein the values of each of the one or more parameters in the group are predetermined for each fixed point and wherein the value of at least one parameter for each fixed point is different from the value of the same parameter for all the other fixed points; and

positioning an unfixed point in the display to set the state, whereby the value of each of the one or more parameters of the group defining the state is determined using the value of the corresponding parameter of each of the fixed points combined with a respective weighting factor, the respective weighting factor for each fixed point depending on the position of the unfixed point relative to that fixed point.

2. A method according to claim 1, wherein the value of each of the one or more parameters of the group defining the state is determined by adding together the results of the respective values of the corresponding parameter of the fixed points each multiplied by the respective weighting factor.

3. A method according to claim 1, wherein the respective weighting factors for the fixed points are determined in accordance with respective weighting functions, whereby:

when the unfixed point is positioned on one of the fixed points, the weighting factor for that fixed point is 1 and the weighting factor of the other fixed points is 0;

when a parameter has the same value for two neighbouring fixed points, the value of the parameter defining the state remains constant as the unfixed point is moved along a straight line between the neighbouring fixed points; and

when a parameter has the same value for all the fixed points, the value of the parameter remains constant for all positions of the unfixed point.

4. A method according to claim 1, wherein, when the unfixed point is positioned on any one of the fixed points, the weighting factor of that fixed point is set at 1 and the weighting

factors of the other fixed points are set at 0, whereby the values of the one or more parameters of the group defining the state are set the same as the predetermined values of the one or more parameters of the group for that fixed point.

5. A method according to claim 4, wherein, when the unfixed point is positioned on a straight line between the closest two fixed points, the sum of the weighting factors of those two fixed points is 1 and the weighting factors of the other fixed points are set at 0.

6. A method according to claim 5, wherein, when the unfixed point is positioned on a straight line between the closest two fixed points, the ratio of the weighting factor of a first of the closest fixed points to the weighting factor of a second of the closest fixed points is the same as the ratio of the distance of the unfixed point from the first fixed point to the distance of the unfixed point from the second fixed point.

7. A method according to claim 3, wherein, when the unfixed point is positioned neither on any one of five fixed points nor on a straight line between the closest two fixed points, the sum of the weighting factors of the closest three fixed points is 1 and the weighting factors of the other two fixed points are set at 0.

8. A method according to claim 1, wherein all the points are displayed in two dimensions.

9. A method according to claim 8, further comprising displaying four of the fixed points at the respective four corners of a square and a fifth fixed point at the centre of the thus displayed square.

10. A method according to claim 9, further comprising positioning the unfixed point only within the displayed square.

11. A method according to claim 9, wherein the weighting factor for each of the fixed points is determined using a respective pyramid-shaped weighting function.

12. A method according to claim 11, wherein each pyramid-shaped weighting function has a square base and an apex at the respective fixed point.

13. A method according to claim 12, wherein:

the weighing factor for an fixed point is set at 1 when the unfixed point is positioned on the apex;

the weighting factor is set at 0 when the unfixed point is positioned on one of, or outside, the edges of the square base; and

the weighting factor is set between 0 and 1 when the unfixed point is positioned between the apex and one of the edges of the square base depending on the height of the unfixed point up the pyramid.

14. A method according to claim 12, wherein the square bases of the pyramid-shaped weighting functions of the four corner fixed points are at 45° to the displayed square.

15. A method according to claim 12, wherein the square base of the pyramid-shaped weighting function of the fixed point at the centre of the displayed square is concentric with the displayed square.

16. A method according to claim 15, wherein the square base of the pyramid-shaped weighting function of the fixed point at the centre of the displayed square is the same as the displayed square.

17. A method according to claim 12, wherein the square bases of the pyramid-shaped weighting functions of the four corner fixed points have the same area as one another.

18. A method according to claim 12, wherein, if the five fixed points are defined as lying at coordinates [0,0], [-1,1], [1,1], [-1,-1], and [1,-1] respectively, then the corners of the square bases of the respective pyramid-shaped weighting functions are defined as lying at:

[-1,1], [1,1], [1,-1], and [-1,-1];

[-3,1], [-1,3], [1,1], and [-1,-1];

[-1,1], [1,3], [3,1], and [1,-1];

[-3,-1], [-1,1], [1,-1], and [-1,-3]; and

[-1,-1], [1,1], [3,-1], and [1,-3] respectively.

19. A method according to claim 1, further comprising setting movement of the position of the unfixed point in the display, thereby effecting a corresponding transition of the state.

20. A method according to claim 1, further comprising setting the predetermined values of the one or more parameters in the group for each of the fixed points.

21. A method according to claim 1, wherein the state is an image state, including video.

22. A method according to claim 1, wherein the state is an audio state.

23. A method according to claim 22, further comprising synthesising a sound, the state of the sound being defined by the group of parameters.

24. A method according to claim 23, wherein the sound is synthesised by simulating a vibrating string and the group of parameters comprises one or more of string stiffness, pickup position, string loss, bow pressure, bow speed and bow position.

25. A method as in claim 23 wherein the position of the unfixed point is controlled by a cursor positioning device.

26. An apparatus for setting a state, which is defined by a group of one or more parameters, the apparatus comprising:

a display for displaying at least five fixed points each associated with the group of one or more parameters, wherein the values of each of the one or more parameters in the group are predetermined for each fixed point and wherein the value of at least one parameter for each fixed point is different from the value of the same parameter for all the other fixed points; and

a control coupled to the display, the control for positioning a unfixed point in the display to set the state; and

a processor coupled to the control, the processor for determining the value of each of the one or more parameters of the group defining the state using the value of the corresponding parameter of each of the fixed points combined with a respective weighting factor, the respective weighting factor for each fixed point depending on the position of the unfixed point relative to that fixed point.

27. An apparatus according to claim 26, wherein the value of each of the one or more parameters of the group defining the state is determined by adding together the results of the respective values of the corresponding parameter of the fixed points each multiplied by the respective weighting factor.

28. An apparatus according to claim 26, wherein the processor is adapted to determine the respective weighting factors for the fixed points in accordance with respective weighting functions, whereby:

when the unfixed point is positioned on one of the fixed points, the weighting factor for that fixed point is 1 and the weighting factor of the other fixed points is 0;

when a parameter has the same value for two neighbouring fixed points, the value of the parameter defining the state remains constant as the unfixed point is moved along a straight line between the neighbouring fixed points; and

when a parameter has the same value for all the fixed points, the value of the parameter remains constant for all positions of the unfixed point.

29. An apparatus according to claim 26, wherein, when the unfixed point is positioned on any one of the fixed points, the weighting factor of that fixed point is set at 1 and the weighting factors of the other fixed points are set at 0, whereby the values of the one or more parameters of the group defining the state are set the same as the predetermined values of the one or more parameters of the group associated with that fixed point.

30. An apparatus according to claim 29, wherein, when the unfixed point is positioned on a straight line between the closest two fixed points, the sum of the weighting factors of those two fixed points is 1 and the weighting factors of the other three fixed points are set at 0.

31. An apparatus according to claim 30, wherein, when the unfixed point is positioned on a straight line between the closest two fixed points, the ratio of the weighting factor of a first of the closest fixed points to the weighting factor of a second of the closest fixed points is the same as the ratio of the distance of the unfixed point from the first fixed point to the distance of the unfixed point from the second fixed point.

32. An apparatus according to claim 26, wherein, when the unfixed point is positioned neither on any one of five fixed points nor on a straight line between the closest two fixed points, the sum of the weighting factors of the closest three fixed points is 1 and the weighting factors of the other two fixed points are set at 0.

33. An apparatus according to claim 26, wherein all the points are displayed in two dimensions.

34. An apparatus according to claim 33, in which four of the fixed points are displayed at the respective four corners of a square and a fifth fixed point at the centre of the displayed square.

35. An apparatus according to claim 34, further comprising positioning the unfixed point only within the displayed square.

36. An apparatus according to claim 34, wherein the weighting factor for each of the fixed points is determined using a respective pyramid-shaped weighting function.

37. An apparatus according to claim 36, wherein each pyramid-shaped weighting function has a square base and an apex at the respective fixed point.

38. An apparatus according to claim 37, wherein:

the weighing factor for an fixed point is set at 1 when the unfixed point is positioned on the apex;

the weighting factor is set at 0 when the unfixed point is positioned on one of or outside the edges of the square base; and

the weighting factor is set between 0 and 1 when the unfixed point is positioned between the apex and one of the edges of the square base depending on the height of the unfixed point up the pyramid.

39. An apparatus according to claim 37, wherein the square bases of the pyramid-shaped weighting functions of the four corner fixed points are at 45° to the displayed square.

40. An apparatus according to claim 37, wherein the square base of the pyramid-shaped weighting function of the fixed point at the centre of the displayed square is concentric with the displayed square.

41. An apparatus according to claim 40, wherein the square base of the pyramid-shaped weighting function of the fixed point at the centre of the displayed square is the same as the displayed square.

42. An apparatus according to claim 37, wherein the square bases of the pyramid-shaped weighting functions of the four corner fixed points have the same area as one another.

43. An apparatus according to claim 37, wherein, if the five fixed points are defined as lying at coordinates [0,0], [-1,1], [1,1], [-1,-1] and [1,-1] respectively, then the corners of the square bases of the respective pyramid-shaped weighting functions are defined as lying at:

[-1,1], [1,1], [1,-1], and [-1,-1];

[-3,1], [-1,3], [1,1], and [-1,-1];

[-1,1], [1,3], [3,1], and [1,-1];

[-3,-1], [-1,1], [1,-1], and [-1,-3]; and

[-1,-1], [1,1], [3,-1], and [1,-3] respectively.

44. An apparatus according to claim 26, wherein said control is capable of setting movement of the position of the unfixed point in the display, thereby effecting a corresponding transition of the state.

45. An apparatus according to claim 26, wherein the state is an image state, including a video state.

46. An apparatus according to claim 26, wherein the state is an audio state and the apparatus is a synthesiser for synthesising a sound, and the state of the sound is defined by the group of parameters.

47. A synthesiser according to claim 46, in which the sound is synthesised by simulating a vibrating string, wherein the parameters comprise one or more of string stiffness, pickup position, string loss, bow pressure, bow speed and bow position.

48. A method of setting a state, which is defined by a group of one or more parameters, the method comprising:

providing a display of fixed points each associated with the group of one or more parameters, wherein the values of each of the one or more parameters in the group are predetermined for each fixed point, wherein all but one of the fixed points are located at corners of a boundary and the remaining fixed point is located within the boundary; and

positioning an unfixed point in the display to set the state, whereby the value of each of the one or more parameters of the group defining the state is determined using the value of the corresponding parameter of each of the fixed points combined with a respective weighting factor, the respective weighting factor for each fixed point depending on the position of the unfixed point relative to that fixed point.

49. An apparatus for setting a state, which is defined by a group of one or more parameters, the apparatus comprising:

a display for displaying fixed points each associated with the group of one or more parameters, wherein the values of each of the one or more parameters in the group are predetermined for each fixed point, wherein all but one of the fixed points are located at corners of a boundary and the remaining fixed point is located within the boundary; and

a control coupled to the display, the control for positioning a unfixed point in the display to set the state; and

a processor coupled to the control, the processor for determining the value of each of the one or more parameters of the group defining the state using the value of the corresponding parameter of each of the fixed points combined with a respective weighting factor, the respective weighting factor for each fixed point depending on the position of the unfixed point relative to that fixed point.

50. A machine readable medium which provides a computer program for causing a computer to perform a method according to claim 48.

51. A machine implemented method of determining a transition of a presentation, the method comprising:

displaying at least five fixed points on a display, the five fixed points representative of five different possible states of a presentation, each of the five states associated with a group of one or more parameters, wherein all but one of the fixed points define a boundary and the remaining fixed point is within the boundary;

controlling a position of a moveable object within the boundary to define the transition.

52. A method as in claim 51 wherein said presentation is at least one of audio and video presentations.

53. A machine readable medium providing an executable computer program which causes a data processing system to perform a method of determining a transition of a presentation, the method comprising:

displaying at least five fixed points on a display, the five fixed points representative of five different possible states of a presentation, each of the five states associated with a group of one or more parameters, wherein all but one of the fixed points define a boundary and the remaining fixed point is within the boundary;

controlling a position of a moveable object within the boundary to define the transition.

54. A machine readable medium as in claim 53 wherein said presentation is at least one of audio and video presentations.

55. An apparatus for determining a transition of a presentation, the apparatus comprising:

means for displaying at least five fixed points on a display, the five fixed points representative of five different possible states of a presentation, each of the five states associated with a group of one or more parameters, wherein all but one of the fixed points define a boundary and the remaining fixed point is within the boundary;

means for controlling a position of a moveable object within the boundary to define the transition.